

**Notice of Allowability**

Application No.

10/748,867

Applicant(s)

JACOBSEN, ERIC A.

Examiner

TUAN A. PHAM

Art Unit

2618

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed on 01/18/2001.
2. ☒ The allowed claim(s) is/are 1-30.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |                                                                                                            |                                                                                       |
|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)                                           | 5. <input type="checkbox"/> Notice of Informal Patent Application                     |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|                                                                                                            | 9. <input type="checkbox"/> Other _____                                               |

## DETAILED ACTION

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with Attorney of record Stuart A. Whittington on 03/29/2007.
3. The application has been amended as follows:  
**Claim 1 has been changed as follows:**  
--1. A method of detecting an interfering device in a wireless network, the method comprising:  
comparing adaptive modulation information for a communication channel between at least two terminals in both an uplink direction and a downlink direction to determine if a difference adaptive modulation exists; and  
if the difference exists determining that a potential interferer is present in the wireless network. --

**Claim 4 has been changed as follows:**

In claim 4, line 3, after "direction", insert -- . --.

**Claim 7 has been changed as follows:**

--7. An apparatus for detecting an interfering device in a wireless network, the apparatus comprising:

an adaptive modulation component operative to adaptively modulate a signal according to a received requested modulation order;

a comparator communicating with the modulation component and adapted to identify a difference between adaptive modulation information in an uplink direction and adaptive modulation information in a downlink direction; and

**if the difference exists determining that a potential interferer is present in the wireless network.** --

**Claim 12 has been changed as follows:**

--12. A system for detecting an interfering device in a wireless network, the system comprising:

a transceiver operative to send and receive communications in multi-carrier signals including a plurality of modulated subcarriers;

a comparator unit coupled with the transceiver and configured to compare modulation orders for subcarriers in an uplink direction and a downlink direction and identify, if any, a difference between the modulation orders for the uplink direction and the modulation orders for the downlink direction; and

**if the difference exists determining that a potential interferer is present in the wireless network.** --

**Claim 17 has been changed as follows:**

--17. A method of detecting an interfering device in a wireless network, the method comprising:

comparing adaptive modulation information for subcarriers between an uplink direction and a downlink direction to determine if a difference adaptive modulation exists; and

identifying that a device is interfering if the difference exceeds a threshold value. --

**Claim 23 has been changed as follows:**

-- 23. A method of detecting an interfering device in a wireless network, the method comprising:

estimating one or more frequency dependent channel characteristics in a communication channel using modulated subcarriers for communicating between a first network device and a second network device;

determining a modulation order per subcarrier based on the estimated frequency dependent channel characteristics;

comparing modulation orders for communicating in both an uplink direction and a downlink direction between the first and second network devices to identify a difference; and

if the difference exists determining that a potential interferer is present in the wireless network. --

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**Claim 27 has been changed as follows:**

-- 27. An apparatus for detecting an interfering device in a wireless network, the apparatus comprising:

a channel estimator configured to estimate one or more channel characteristics of a communication channel with a network device;

a modulation adaptor communicating with the channel estimator and configured to determine a modulation order for the network device to modulate subcarriers based on the estimated frequency dependent channel characteristics;

a comparator communicating with the modulation adaptor and configured to compare modulation orders of subcarriers in an uplink direction with modulation orders of subcarriers in a downlink direction with the network device and identify, if any, a difference between the modulation orders for the uplink direction and the modulation orders for the downlink direction; and

**if the difference exists determining that a potential interferer is present in the wireless network.** --

**(End of Amendment)**

### **REASONS FOR ALLOWANCE**

4. Claims 1-30 are allowed over the prior art of record.
5. The following is an examiner's statement of reasons for allowance:

The applicant's Remarks, filed on 01/18/2007, have been carefully reviewed with update search. Consequently, reasons for allowance of claims 1-30 are set forth in according to the applicant's remarks stated on pages 2-5.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### **Conclusion**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A. Pham whose telephone number is (571) 272-8097. The examiner can normally be reached on Monday through Friday, 8:30 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Anderson can be reached on (571) 272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

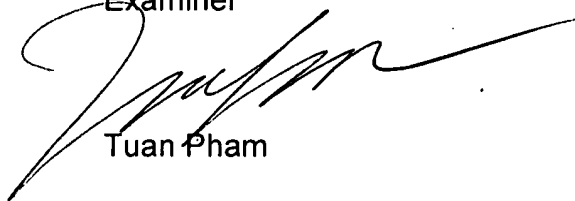
Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have question on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

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March 29, 2007  
Examiner

A handwritten signature in black ink, appearing to read 'Tuan Pham', written over the printed name.

Tuan Pham

Supervisory Patent Examiner  
Technology Center 2600

A handwritten signature in black ink, appearing to read 'Matthew Anderson', written over the printed name.

Matthew Anderson